CLAIMS:

1. An echo canceling device for an arrangement for transmitting audio signals, especially uttered speech, comprising an echo filter (50;51;52) for canceling echo (7), which echo filter is arranged between an input channel (1) for receiving an electrical input signal and coming from a far end and leading to a converter (2) for converting an electrical signal into a first audio signal and an output channel (4) for outputting an electrical output signal and coming from an inverse converter (3) for converting a second audio signal back to an electrical signal and leading to a far end, characterized in that a high-pass filter (8) is arranged in the input channel and has a cut-off frequency that is beyond the cut-off frequency of the high-pass behavior of the converter (2) before the echo filter (502;512;522;532) from the direction of the far end, and in that a limiting element (9) to limit the signal amplitude is arranged in the input channel (1) between the high-pass filter (8) and the echo filter (50;52;52).

2. A device as claimed in claim 1 characterized in that the characteristic of the limiting element (9) is determined by a function that has a first constant (10), a proportional (12) and a second constant section (14) and the transitions between these sections are soft, in particular constant and constantly differentiable.

3. A device as claimed in claim 1 characterized in that the characteristic of the limiting element (9) is formed from a combined function from a first constant (10), a first quadratic (11), a proportional (12), a second quadratic (13) and a second constant term (14).

4. A device as claimed in claim 3 characterized in that the function forming the characteristic of the limiting element (9) is constant and constantly differentiable.

5. A device as claimed in claim 1 characterized in that the characteristic of the limiting element (9) is formed by a tanh function.

6. A device as claimed in claim 1 characterized in that the echo filter (502;512;522;532) is a linear and/or adaptive filter.

7. A device as claimed in claim 1 characterized in that the high-pass filter (8) has a 3dB cut-off frequency of approximately 0.1-2 kHz, in particular of about 0.2-1kHz.

8. A device as claimed in claim 1 characterized in that the 3dB cut-off frequency of the high-pass filter (8) is greater by approximately a factor of 2 to 10, in particular by a factor of approximately 5, than the 3dB cut-off frequency of the converter (2).

9. An arrangement for receiving and transmitting audio signals comprising

- an echo canceling device as claimed in claim 1,
- a converter (2) for converting an electrical signal received on an input channel into a first audio signal, in particular with a D/A converter (21) to convert a digital signal into an analog signal, an amplifier (22) for amplifying the analog signal and a loudspeaker (23) for converting the amplified signal into the first audio signal, and
- an inverse converter (3) for converting a second audio signal back into an electrical signal, especially with a microphone (31) for converting the second audio signal into an analog electrical signal, an amplifier (32) for adapting the analog electrical signal to an amplitude range of an A/D converter and an A/D converter (33) for converting the adapted signal into a digital signal to be passed on to an output channel.

10. An arrangement as claimed in claim 9 characterized in that the arrangement is a mobile telephone, a cordless telephone, a radio set or a hands-free device.

11. An echo canceling method when audio signals are received and output, in particular uttered speech, in which an electrical input signal is received at an input channel (1), is passed through a high-pass filter (8) and then through a limiting element (9) to a converter (2) for converting the electrical input signal into a first audio signal, in which the high-pass filter (8) has a cut-off frequency that is greater than the cut-off frequency of the converter, while an electrical output signal passed on by an inverse converter (3) for converting a second audio signal back to a second electrical signal is output at an output

channel (4), and the electrical input signal is branched off between the limiting element (9) and the converter (2), is fed through an echo filter (50;51;52;53) and is subtracted from the electrical output signal.

12. A computer program with computer programming means to cause a computer to execute the steps of the method as claimed in claim 11 when the computer program is executed on a computer.